

(2.)
S Y L L A B U S

OF A

C O U R S E

OF

EXPERIMENTAL PHILOSOPHY.

MDCCXCVII.



MR. EDWARD-ATHENRY WHYTE,
No. 75, GRAFTON-STREET, having, at a very considerable expence, and no small degree of trouble, prepared a very extensive and curious PHILOSOPHICAL APPARATUS, to which he has lately made several valuable and important Additions, intends, on *Mondays, Wednesdays and Fridays*, the ensuing Season, to repeat his COURSE OF LECTURES, accommodated to the Capacities of Youth, particularly the YOUNG GENTLEMEN of the ENGLISH GRAMMAR SCHOOL; which, at the same time that it affords them an opportunity of furnishing their Minds with much useful Knowledge, scarcely otherwise attainable, will open their Understanding, enlarge their Stock of Ideas, and be productive of many future Advantages in Life, whatever their destination; and at an Expence so inconsiderable, that, it is presumed, it can be no object with Parents who regard their Children's essential Improvement.

He

He also, to comply with the request of several LADIES and GENTLEMEN who have a taste for such useful and entertaining Pursuits, purposes reading a PUBLIC COURSE on the Evenings of the same Days, consisting of SEVENTEEN LECTURES.

SUBSCRIPTION to the entire Course for the Young Gentlemen Pupils only Half-a-guinea each; to the Public Course for Ladies and Gentlemen in the Evening, a Guinea.

PRINCIPAL HEADS OF THE COURSE.

ELECTRICITY.

Short history of the principal discoveries in Electricity. Of the Electrical Machine and Apparatus. Conductors. Non-conductors. Positive and Negative Electricity. Laws of Electricity. Theory of Thunder and Lightning. Identity of Lightning and Electricity proved by Dr. FRANKLIN. Protection from the dangerous effects of Lightning. Conductors—pointed and blunt. Of personal security. Many other atmospheric Phenomena depending upon Electricity; such as the Aurora Borealis, Shooting-stars, Balls of Fire, Ignis Fatuus, Water-spouts, and frequently Earthquakes.

EXPERIMENTS, &c.

Three different Electrical Machines on the newest construction, exhibited and explained;

PARTICULARLY,

NAIRNE's Patent Electrical Machine, with a complete and extensive Medical Apparatus.

Threads

Threads attracted and repelled.

The animated Feather.

Head in Despair.

Electrical Shower.

Several Bells made to ring by the Electrical Fluid.

Dancing Balls.

Electrical Flyer and Points.

A Person insulated, electrified both positively and negatively.

Spirits fired different ways by means of electricity.

Glass Plate charged—discharged.

Jars and Phials charged different ways.

Experiments on charging and discharging the Leyden - Phial, intended to elucidate and confirm Dr. FRANKLIN's Theory.

The Motion of the Sun, Earth and Moon round their respective Centres of Gravity, shewn by the ELECTRIC ORRERY.

That an insulated jar cannot be charged, proved by different experiments.

Analysis of the Leyden Phial, by means of the Leyden Vacuum.

Electric Shock.

The Electrical Fluid conveyed by a Stream of Water, so as to set Fire to Spirits, let off a Pistol, &c.

That Electricity accelerates the Circulation of the Blood, proved by Experiment.

The Spider seemingly animated by Electricity.

Cards pierced by Electricity.

Gunpowder fired by Electricity.

Metals struck into Glass.

Candle newly extinguished, lighted by Electricity.

Jar discharged silently.

Thunder-

Thunder-house.

Aurora Borealis.

Spotted Bottle.

Spiral Tubes.

Luminous Words.

Pith Balls and Images made to dance by means of Electricity.

The danger of combustibles being in the way of Lightning, shewn

By the blowing up of the model of a house ;

By an Electric Cannon charged with inflammable Air, and fired by Electricity.

Apparatus for drawing Lightning from the Clouds.

A new-invented Machine for imitating Thunder and Lightning.

The danger of Breaks in a Conductor, shewn

By stones struck out of a wall, and the demolition of a tall pyramid.

Conductors for Buildings and Ships.

Experiments on a Ship, both with and without a Conductor.

Aquatic Shock.

The Electrical Pistol charged with Inflammable Air, and fired by means of Electricity.

Quadrant Electrometer.

BENNET's Electrometer.

A powerful Electrical Battery.

H Y D R O S T A T I C S.

Concerning Fluids in general.

That the pressure of Fluids is, as their perpendicular Height, proved by various Experiments.

ARCHIMEDES's Laws of Hydrostatics demonstrated;
viz. That a body lighter than a Fluid will swim upon it

it in such a manner, that a quantity of the Fluid, equal to the immerfed part, will be as heavy as the whole body ; and that a body heavier than a Fluid is as much buoyed up therein, as is equal to the weight of the Fluid whose place it occupies.

A Machine for fhewing that Fluids weigh as much in their own element as in air.

The Theory of the Hydrostatic balance, or the method of finding the specific gravity of different folid, whatever may be their form.

The Nature and Ufe of the Hydrometer or Waterpoife.
Of Heat and the Rarefaction of Bodies.

Pyrometer.

That Fluids prefs in all manner of directions at the fame time.

That upon thefe principles Lead, or any other Metal, may be made to fwim in water.

A Machine for demonftrating that the quantity of water displaced by a fhip is equal to the whole weight of the fhip and cargo.

Method of difcovering the Specific gravity of Fluids, ftrength of Spirits, &c.

The motion of Glafs Images, called the Cartefian Devils, fhewn and explained.

A Machine for fhewing, that, at equal heights, the fmalleft quantity of water will balance the greateft quantity whatever, if the columns join at bottom.

That on equal bottoms, the preffure of Fluids is in proportion to their perpendicular height, be their quantities ever fo great or fmall.

This paradox demonftrated by a new-invented machine.

✧ Thefe Experiments, together with many others in Hydrostatics, will be illuftrated by an Apparatus, which is allowed to furpafs any thing of the Kind yet feen in Ireland.

P N E U M A T I C S.

Air. Proofs of its materiality; of its weight; specific gravity. Pressure arising from the weight of air, equal to near fifteen pounds on a square inch. Rise of water in pumps and syphons. Toricellian experiment.

The nature, construction, and use of the Barometer, with the phenomena attending it in vacuo.

Method of determining the height of mountains.

Description of the air-pump; particularly one of a new and curious construction by ADAMS, of London.

Air weighed in a balance.

The effects of the air's pressure shewn by several experiments; particularly, the famous experiment with BRASS HEMISPHERES;

By its pressing the hand on the hand-glass;

By its breaking a bladder, &c. &c.

By the operation of the common pump;

By its forcing Quicksilver through the pores of wood, and Water into a hollow glass-ball.

Artificial Fountain.

Resistance of air;—reason why all bodies do not fall equally quick:—a Guinea and a Feather, in an exhausted receiver, fall together.

A new Apparatus for firing Gunpowder in vacuo.

Bodies weighed in air lose a portion of their weight.

Spring of the air equal to its pressure: proved by a variety of experiments; particularly by its supporting a column of Quicksilver, of the same height as in the Barometer;—by the half-exhausted bladder;—the bolt-head and bottle;—Artificial Fountain, &c.

Great weights raised and supported by the spring of the air.

The experiment called the Bacchus.

A Model

A Model of a Pump, illustrating at the same time the nature of Pumps, and proving that there is no such thing as suction.

A Filtering-cup.

A plate and piece of wood.

[*The two last articles are for shewing the porosity of Vegetables.*]

Air extracted from beer, warm water, wood, fruit, &c.

Experiments to prove that the elastic or springing force of the air is increased by heat.

That air may be condensed as well as rarefied.

Condensing Syringe.

Fountain by condensed air.

Experiments with the air-gun.

The properties of Sound, with the manner of its propagation considered. Echos.

Experiments to prove that Sound is communicated by air ; particularly,

By a clock striking in vacuo, not heard.

Air rarified or attenuated ; its consequences ; and several curious Phenomena exhibited by Experiments on animals in vacuo.

Syphons.

TANTALUS's Cup.

Intermitting Springs.

Several experiments to prove the different causes of vitiated air.

The effects of vitiated air shewn by experiments.

The noxious properties of vitiated air demonstrated.

That Fire and Flame are fed by air.

The nature of fulminating or fire-damps in Mines, shewn by experiments.

Nature of respiration.

Lungs-Glafs.

Effect of Vegetables in purifying the Atmosphere.

The wonderful rarefaction of water by fire, shewn by the *ÆOLIPYLE*, with the demonstration of the properties of steam.

PAPIN'S Digester described.

CHYMICAL PROPERTIES OF DIFFERENT AIRS; PARTICULARLY,

Fixed Air.

Nitrous Air.

Inflammable Air.

Vitriolic-acid Air.

Fluor-acid Air.

Dephlogisticated or perfect atmospheric Air.

A beautiful AERIAL-FIREWORK.

BALLOONS, how first discovered; the different methods made use of in filling them, and to what uses they may be applied.

The Art of DIVING explained, with Dr. HALLEY'S Improvements of the DIVING-BELL.

Several other methods of Diving explained.

A complete MODEL of a DIVING-BELL, with all the necessary Apparatus belonging to it, and its Uses elucidated by the introduction of a living animal.

With a Variety of other incidental Experiments too numerous for insertion.

The Whole will be illustrated after so easy and familiar a manner, that persons, not skilled in Mathematics, may attain a more perfect Knowledge of the works of Nature by these Experiments, than is possible by a long Course of severe Study without them; and to smoothe the paths of Learning for Youth, care will be taken to avoid, or explain, all hard words and crabbed terms of art; so that these polite Sciences may be rendered improving and delightful to young people as well as those more advanced.